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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/569,560 | 02/27/2006 | Steven B. Lonnes | 2003UR037 | 5370 |
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| Exxon Mobil Upstream Research Company P.O. Box 2189 (CORP-URC-SW 359) Houston, TX 77252-2189 | | | EXAMINER FRISTOE JR, JOHN K | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/569,560

Applicant(s)

LONNES, STEVEN B.

Examiner

John K. Fristoe Jr.

Art Unit

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/27/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1, 2, and 4-10 have been considered but are moot in view of the new ground(s) of rejection. Since the new grounds of rejection were necessitated by Applicant's amendment, the instant Office action has been made final.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 6, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,634,627 (Daido et al.) in view of U.S. Pat. No. 4,316,482 (Pearce et al.) and U.S. Pat. No. 5,676,342 (Otto et al.). Daido disclose a pressure actuated valve comprising a cartridge style valve body (1), a cavity (within element 17), a retaining cap (17), an annular wall (18), a central bore (16), an outer annular region (S), two passages (6, 7), a valve seat (9) having a 45 degree chamfer (figure 1), a passage (21), a plunger (12), a head (19), a sealing end (4), wherein the inlet (6), and the outlet (7) is substantially obstructed (figure 1) in the valve open position, a spring (31), a seal (29) separating the actuating fluid from the fluid flowing through the valve, and wherein one passage (7) is non-axial and the other (6) is continuous but lacks the head contacting the retaining cap in the valve open position as well as a vertical and inclined passage geometry leading up to said location..

Regarding the head, Pearce et al. teach a pressure-actuated valve comprising a valve body (36), a retaining cap (39), a plunger (13), a head (41), and wherein the head (41) contacts the retaining cap (39). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the valve device of Daido et al. by having the head contact the retaining cap as taught by Pearce et al. in order to provide a more substantial travel limiting device.

Regarding the passage geometry, Otto et al. teach a reciprocating valve comprising a plunger (84), a head (68), two passages (within 34 and above element 66 in figure 1), and wherein one passage is vertical (within element 34) and one passage is inclined (above element 66 in figure 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the pressure actuated valve of Daido et al. by making one passage vertical and one passage inclined as taught by Otto et al. since changing the angles of the flow passages within valves merely requires ordinary skill in the art and since changing the angles of the flow passages would result in a predictable outcome.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,634,627 (Daido et al.) in view of U.S. Pat. No. 4,316,482 (Pearce et al.) as applied to claim 1 above, and further in view of U.S. Pat. No. 4,807,846 (Greiner et al.). Daido modified above disclose a pressure actuated valve comprising a valve body (1), a cavity (within element 17), a retaining cap (17), an annular wall (18), a central bore (16), an outer annular region (S), two passages (6, 7), a valve seat (9), a passage (21), a plunger (12), a head (19), a sealing end (4), wherein the inlet (6), and the outlet (7) is substantially obstructed (figure 1) in the valve open position, a spring (31), a seal (29) separating the actuating fluid from the fluid flowing through

the valve but lacks a bushing between the plunger head and the spring. Greiner et al. teach a valve device comprising a plunger head (28), a spring (44), and a bushing between the plunger head (28) and the spring (44). It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the valve device of Daido et al. by adding a bushing between the plunger head and the spring as taught by Greiner et al. in order to avoid wear to the plunger head created by the movement of the spring member during operation.

5. Claims 3, 4, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,634,627 (Daido et al.) in view of U.S. Pat. No. 4,316,482 (Pearce et al.) as applied to claim 1 above, and further in view of U.S. Pat. No. 4,335,744 (Bey). Daido modified above, disclose a pressure actuated valve comprising a cartridge style valve body (1), a cavity (within element 17), a retaining cap (17), an annular wall (18), a central bore (16), an outer annular region (S), two passages (6, 7), a valve seat (9) having a 45 degree chamfer (figure 1), a passage (21), a plunger (12), a head (19), a sealing end (4), wherein the inlet (6), and the outlet (7) is substantially obstructed (figure 1) in the valve open position, a spring (31), a seal (29) separating the actuating fluid from the fluid flowing through the valve, and wherein one passage (7) is non-axial and the other (6) is continuous but lacks the spring being a Belleville spring. Bey teaches a valve device having a head (62), a retaining cap 22), and a Belleville spring (116) that biases the head (62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the valve device of Daido et al. by replacing the spring with a Belleville spring as taught by Bey in order to apply a consistent compression force of the head.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,634,627 (Daido et al.) in view of U.S. Pat. No. 4,316,482 (Pearce et al.) as applied to claim 1

above, and further in view of engineering expedient. Daido modified above, disclose a pressure actuated valve comprising a cartridge style valve body (1), a cavity (within element 17), a retaining cap (17), an annular wall (18), a central bore (16), an outer annular region (S), two passages (6, 7), a valve seat (9) having a 45 degree chamfer (figure 1), a passage (21), a plunger (12), a head (19), a sealing end (4), wherein the inlet (6), and the outlet (7) is substantially obstructed (figure 1) in the valve open position, a spring (31), a seal (29) separating the actuating fluid from the fluid flowing through the valve, and wherein one passage (7) is non-axial and the other (6) is continuous but lacks the clearance between the plunger and the bore being between .13 mm and .25 mm. One of ordinary skill in the art of valve manufacture would design a valve with a clearance between the plunger and the bore at a size that would decrease leakage including the distance between .13mm and .25 mm. It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the valve device of Daido et al. by making the clearance between the plunger and bore between .13 mm and .25 mm as an engineering expedient in order to reduce any leakage between the plunger and bore.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,634,627 (Daido et al.) in view of U.S. Pat. No. 4,316,482 (Pearce et al.) as applied to claim 1 above, and further in view of engineering expedient. Daido modified above, disclose a pressure actuated valve comprising a cartridge style valve body (1), a cavity (within element 17), a retaining cap (17), an annular wall (18), a central bore (16), an outer annular region (S), two passages (6, 7), a valve seat (9) having a 45 degree chamfer (figure 1), a passage (21), a plunger (12), a head (19), a sealing end (4), wherein the inlet (6), and the outlet (7) is substantially obstructed (figure 1) in the valve open position, a spring (31), a seal (29) separating the actuating

fluid from the fluid flowing through the valve, and wherein one passage (7) is non-axial and the other (6) is continuous but lacks the annular valve seat having a radial dimension of approximately .25 mm. One of ordinary skill in the art of valve manufacture would design a valve seat having a radial dimension adequate to valve the fluid within the fluid handling system including a radial dimension of .25 mm. It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the valve device of Daido et al. by making the radial dimension of the valve seat approximately .25 mm as an engineering expedient in order to allow the required fluid to pass through the valve assembly.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John K. Fristoe Jr. whose telephone number is (571) 272-4926. The examiner can normally be reached on Monday-Friday, 7: 00 a.m-4: 30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Huson can be reached on (571) 272-4887. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/John K. Fristoe Jr./
John K. Fristoe Jr.
Examiner
Art Unit 3753

JKF